

# LDRD Impact: Coupled Structural Acoustics

SAND2011-7275P

**Challenge:** Design a massively parallel, coupled acoustic/structure simulation capability for qualification of engineering systems relevant to the weapons community

**LDRD Origin:** 1 project over 1 year

- Qualified components based on experimentally measured responses
- Simulation environment for quantifying margin
- Coupled structural-acoustics capable of accounting for key engineering issues



Re-entry vehicle:  
conceptual

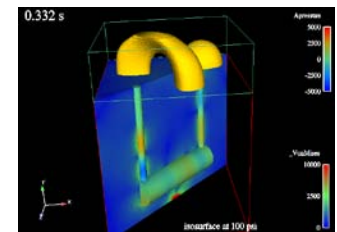
**ST&E Evolution:**

Follow-on projects in

- underground facility monitoring
- tire noise modeling



Experimental setup



Simulation: acoustic response

**Program Impact:**

- Massively parallel coupled simulation critical for B61 Life Extension Program
- Modeling test environments can reduce number of required tests